The Risk of Violent Crime Victimization in the State of West Virginia by Race and Sex: A Lifetime Perspective

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Background

- Until recently, the official police crime data collected under UCR did not provide information about victims and/or offenders; therefore, crime analysis was limited.

- Incident-Based Reporting provides many more opportunities for analysis

Table 1.   West Virginia Violent Crime Rate by Race and Sex

	WHITE		BLACK		OTHER	
	Male	Female	Male	Female	Male	Female
Number in Pop. -2002	837,658	885,768	31,364	30,843	7,981	8,259
Number of Violent Crime Victims -2002	6,572	9,700	546	749	9	24
Crime Rate (per 1,000)	*7.85*	*10.95*	*17.41*	*24.28*	*1.13*	*2.91*

Table 2. Number of Violent Crime Victims by Sex and Offender Type					
	Male	Perc.	Female	Perc.	Total
Violent Crime	7,127		10,473		17,600
Violent Crime with Known Offender	6,167	100	9,818	100	15,985
Offender was Intimate Partner	924	*15*	5,037	*51*	5,961
Offender was Family Member	1,114	*18*	1,688	*17*	2,802
Offender was Acquaintance	3,278	*53*	2,706	*28*	5,984
Offender was Stranger	851	*14*	387	*4*	1,238

Figure 1. Number of Violent Crime Victims in West Virginia in 2002 by Sex and Victim's Relationship to Offender
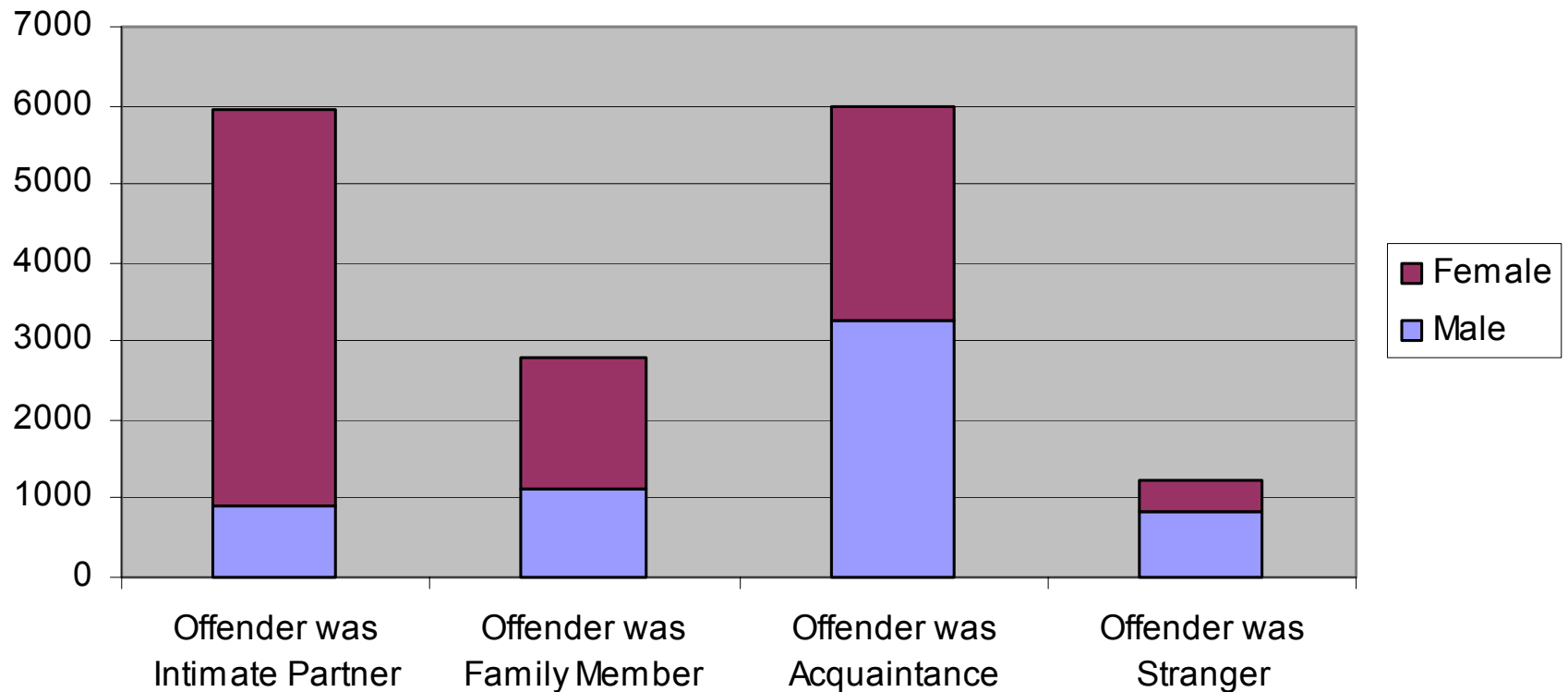
Moving Beyond Descriptive Analyses

- Under the National Incident-Based Reporting System (NIBRS), the probability of violent crime victimization by race, age, and sex can be calculated.

Research Questions

- 1. What are the relative risks of violent crime victimization over a lifetime in the state of West Virginia by race and sex?

- 2. How are these risks affected by the relationship between victims and offenders?

Methods

- Concept of "Average Person" used here originally developed by Yoshio Akiyama

- Crime data for a given year are held constant. There is no crime forecasting.

- Purpose: Determine what the current year's crime rate means when translated into a lifetime frame.

- Data: 1) WVIBRS 2002 2) Postcensal estimates of 2002 WV population by age, race, and sex by the National Center for Health Statistics.

Violent Crime

- Violent crime is defined as aggravated assault, simple assault, forcible rape and other sex offenses.

Violent Crimes by Victim-Offender Relationship

- Intimate Partner
- Family Member
- Acquaintance or Otherwise Known
- Stranger

The Average Person (TAP)

- *TAP* is a "hypothetical person" whose expected number of victimizations is equal to the per person crime rate.

- Some individuals are victimized multiple times; therefore, the crime rate is not a measure of the probability of victimization.

Poisson Assumptions

- The violent crime victimizations for an individual are Poisson distributed with a parameter

$$\lambda > 0$$

Poisson Assumptions (cont.)

- If *The Average Person* lives to age *a*, he or she will be exposed each year to the Poisson victimization process. Since the person is average, these Poisson distributions have the parameters

$$R_0, R_1, R_2, R_3, ..., R_a$$

Poisson Assumptions (cont.)

- The Poisson victimization variables for an individual are **independent.** Therefore, if the average person lives to age *a,* then he or she is cumulatively exposed to the Poisson victimization process with the parameter

$$\lambda_a = R_0 + R_1 + R_2 + ... + R_a$$

Poisson Assumptions (cont.)

- Based on the following theorem: A Poisson distribution is "reproductive," i.e., the sum of k independent Poisson distributions is a Poisson distribution with its parameter being equal to the sum of k parameters. (Stuart & Ord, 1987)

Poisson Assumptions (cont.)

- If *The Average Person* lives to age *a*, then the probability of his or her experiencing violent crime victimizations x times (denoted as p(x|a) is described by the Poisson density function with the parameter

$$\lambda$$

Most Vulnerable Age Groups by Race and Sex

- See tables 3 - 7

Figure 1. The Average Person's Risk of Violent Crime Victimization Over the Life Course by Race, and Sex
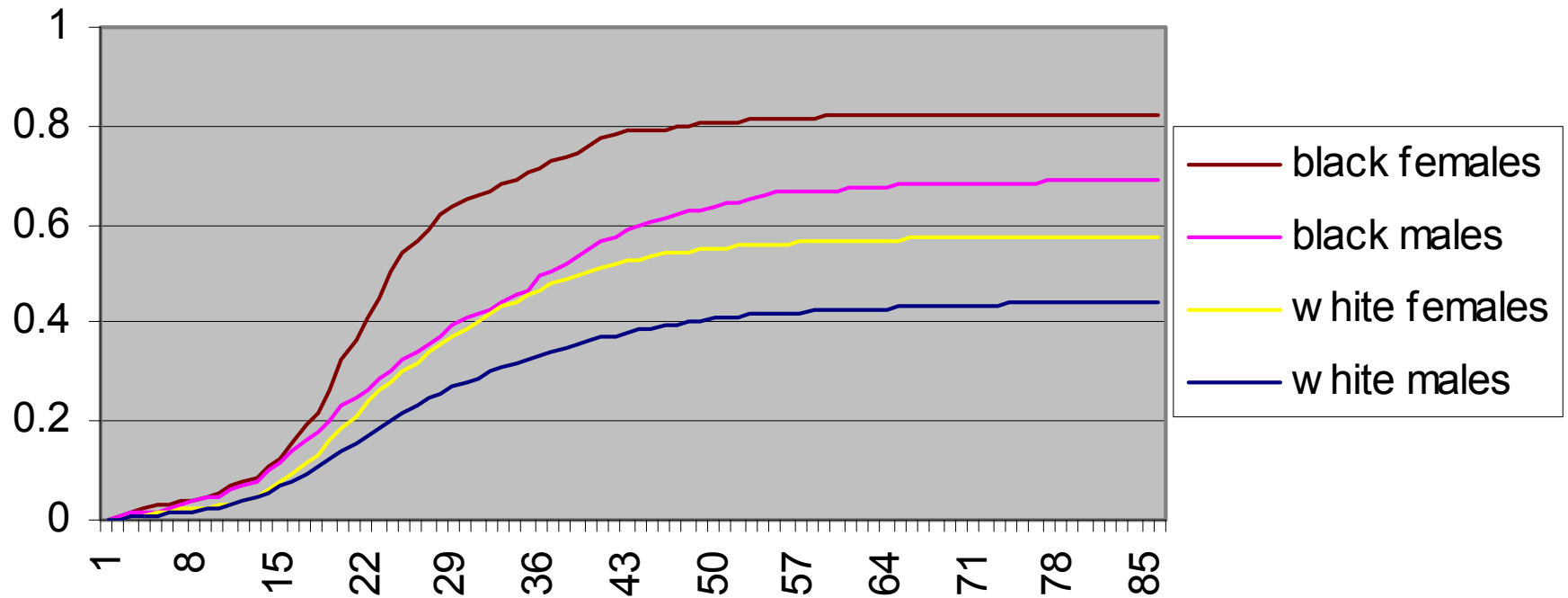
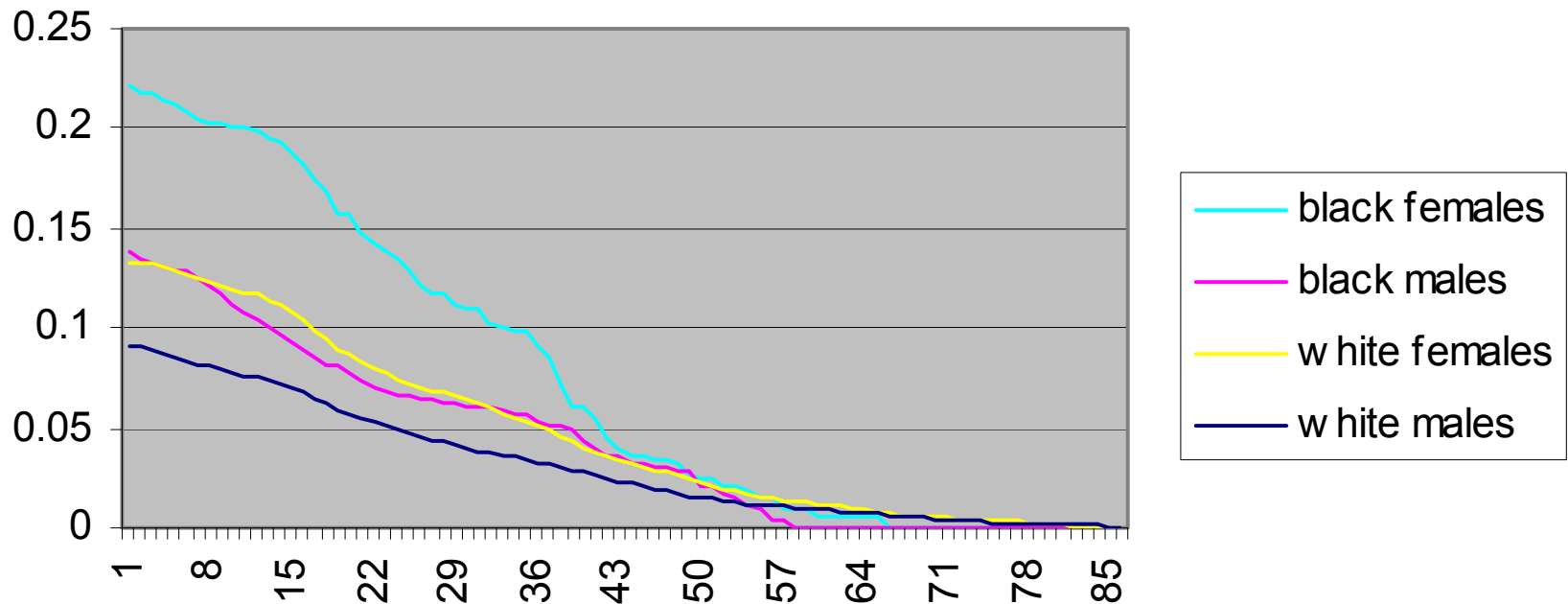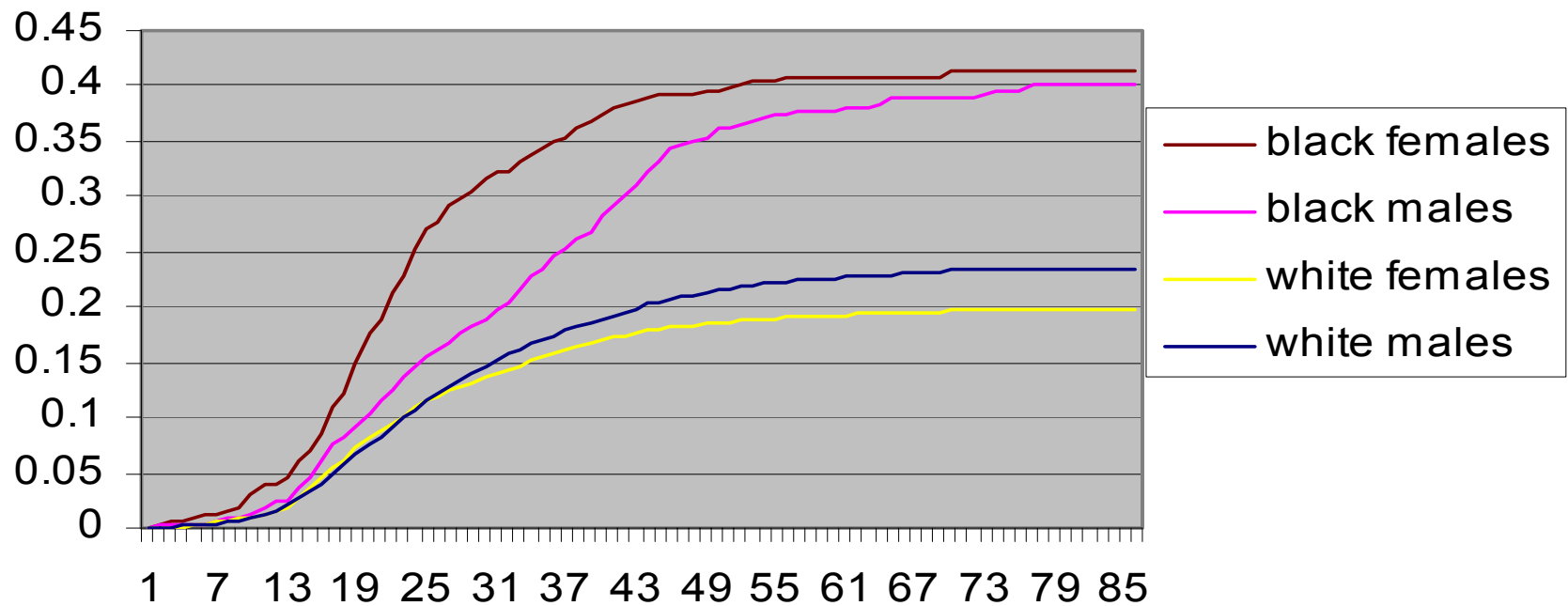Figure   The Average Person's Risk of Violent Crime Vicitimization From Age X through Age 85 by Race and Sex
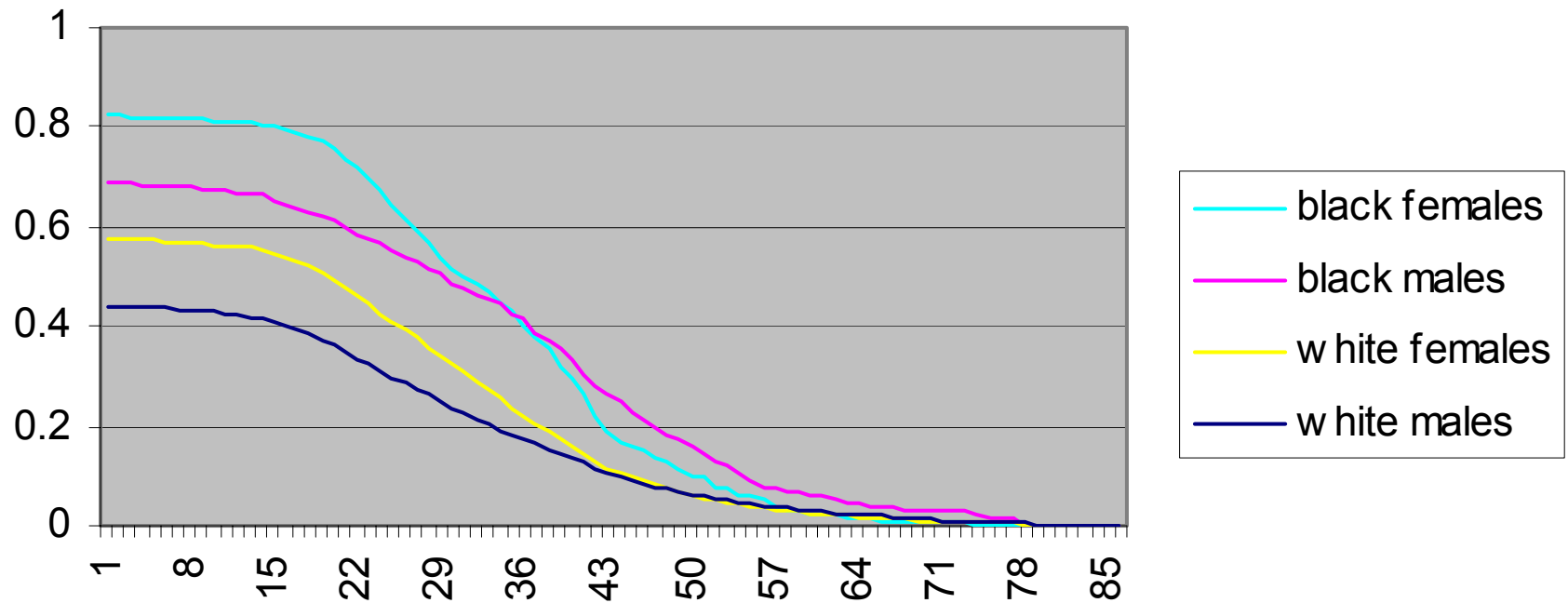
Figure 2. The Average Person's Risk of Violent Crime Victimization Over the Life Course by Age, Race, and Sex -- When Offender is an Intimate Parnter
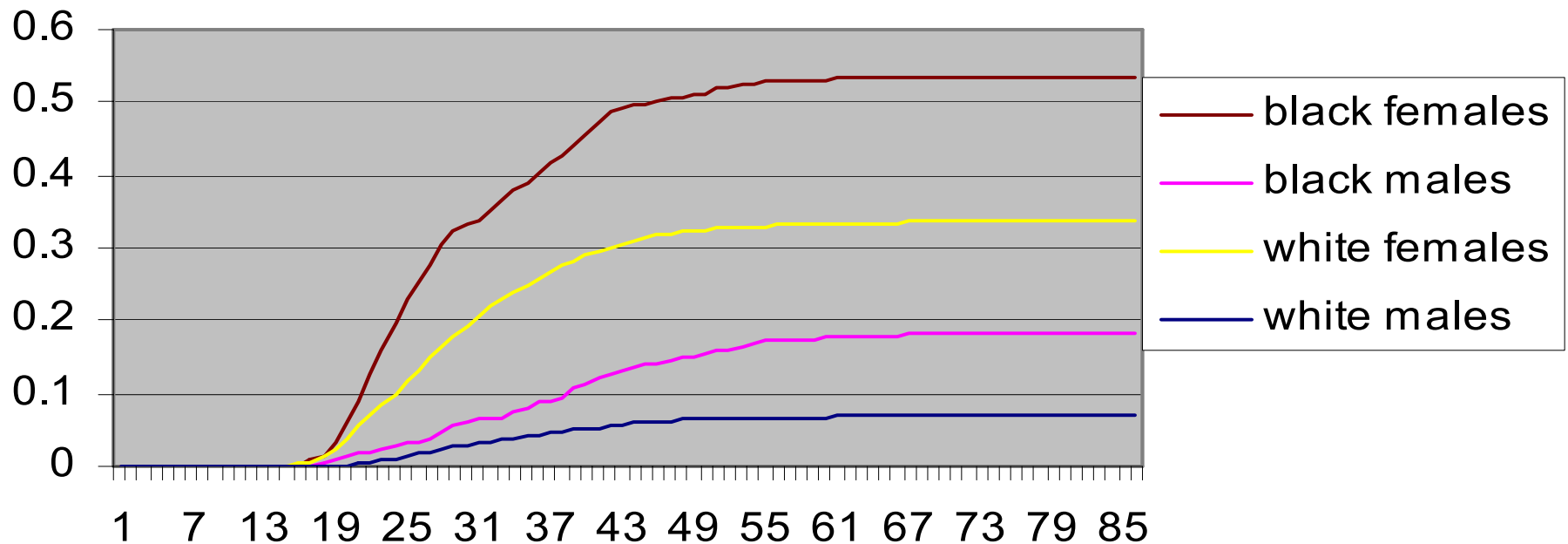
The Average Person's Risk of Violent Crime Vicitimization by an Intimate Partner in West Virginia from Age x to Age 85 by Race and Sex
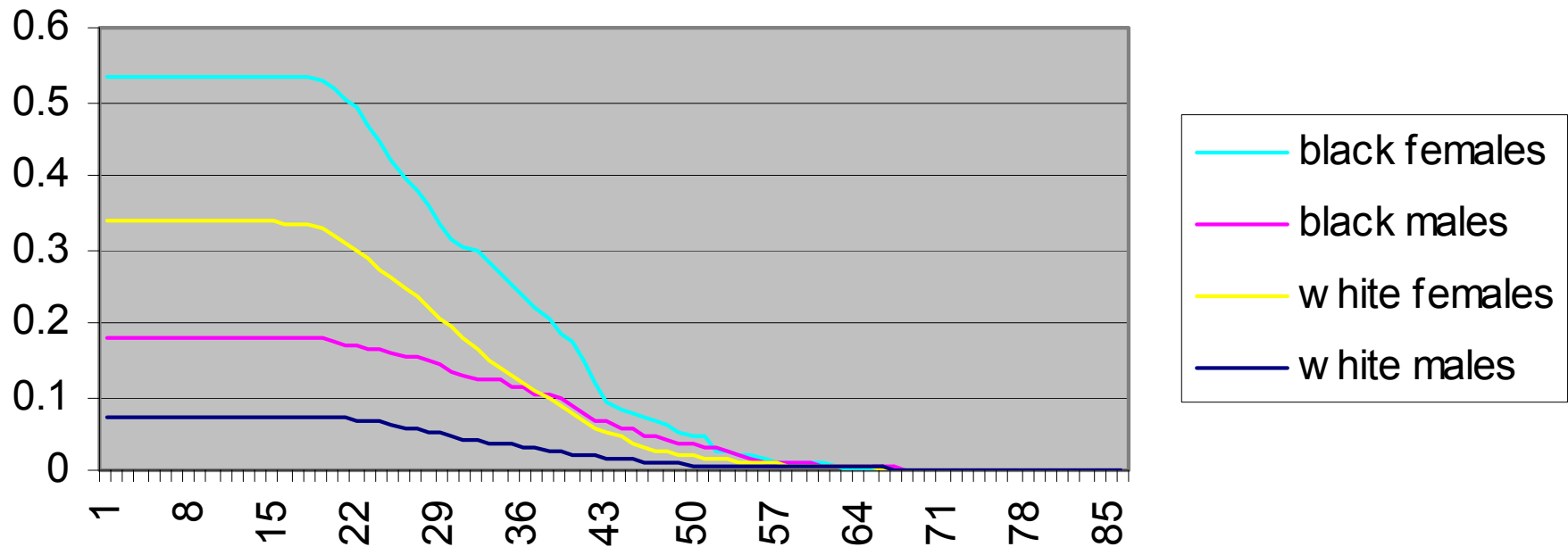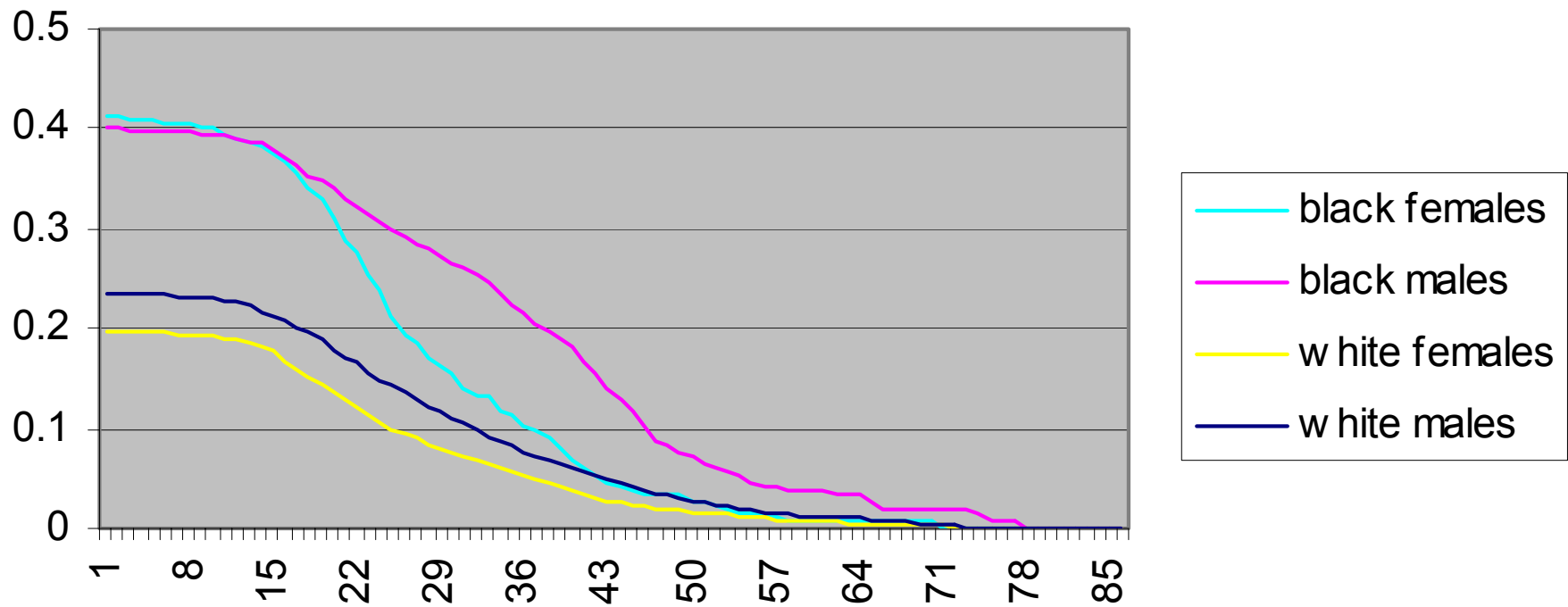
Figure 3. The Average Person's Risk of Violent Crime Victimization Over the Life Course by Age, Race, and Sex -- When Offender is a Family Member
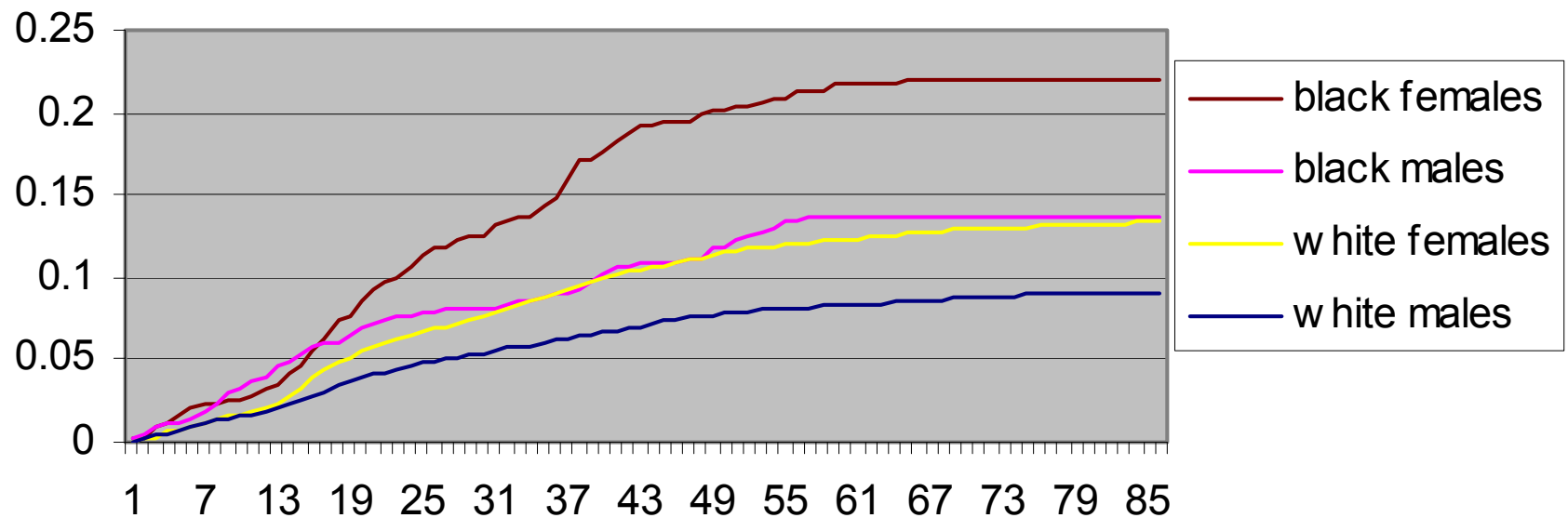
The Average Person's Risk of Violent Crime Vicitimization by a Family Member in West Virginia from Age x to Rest of Life

Legend: black females, black males, white females, white males

Figure 4. The Average Person's Risk of Violent Crime Victimization Over the Life Course by Age, Race, and Sex -- When Offender is an Acquaintance or Otherwise Known

The Average Person's Risk of Violent Crime Victimization by an Acquaintance in West Virginia from Age x to Rest of Life
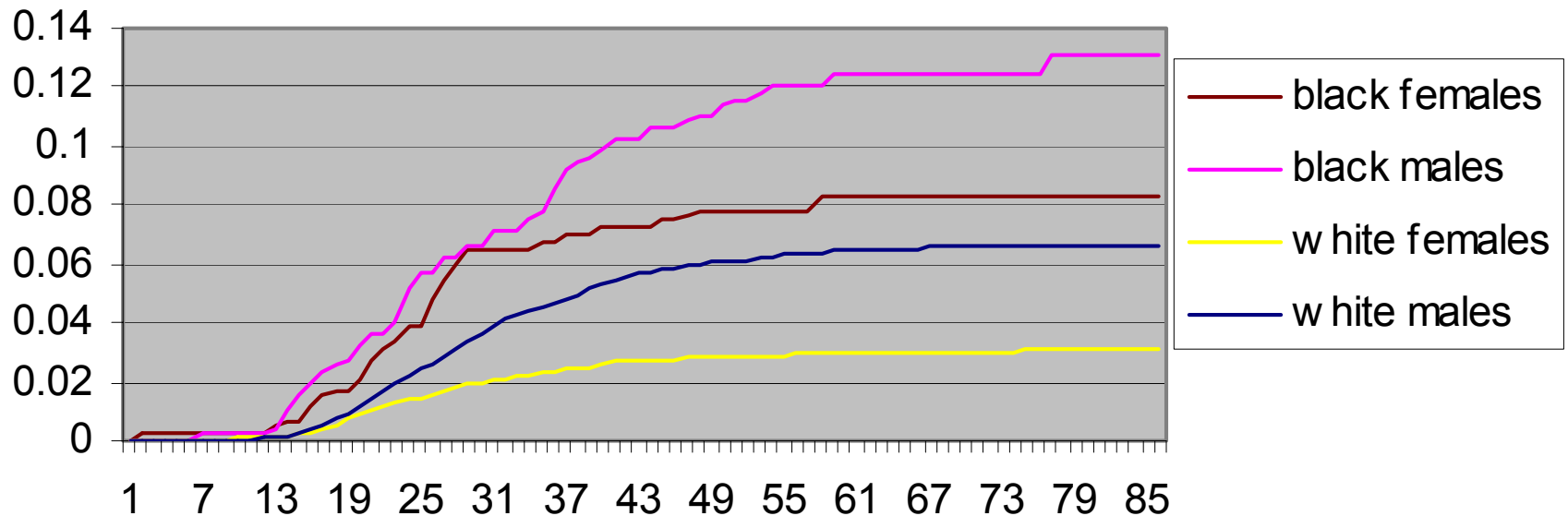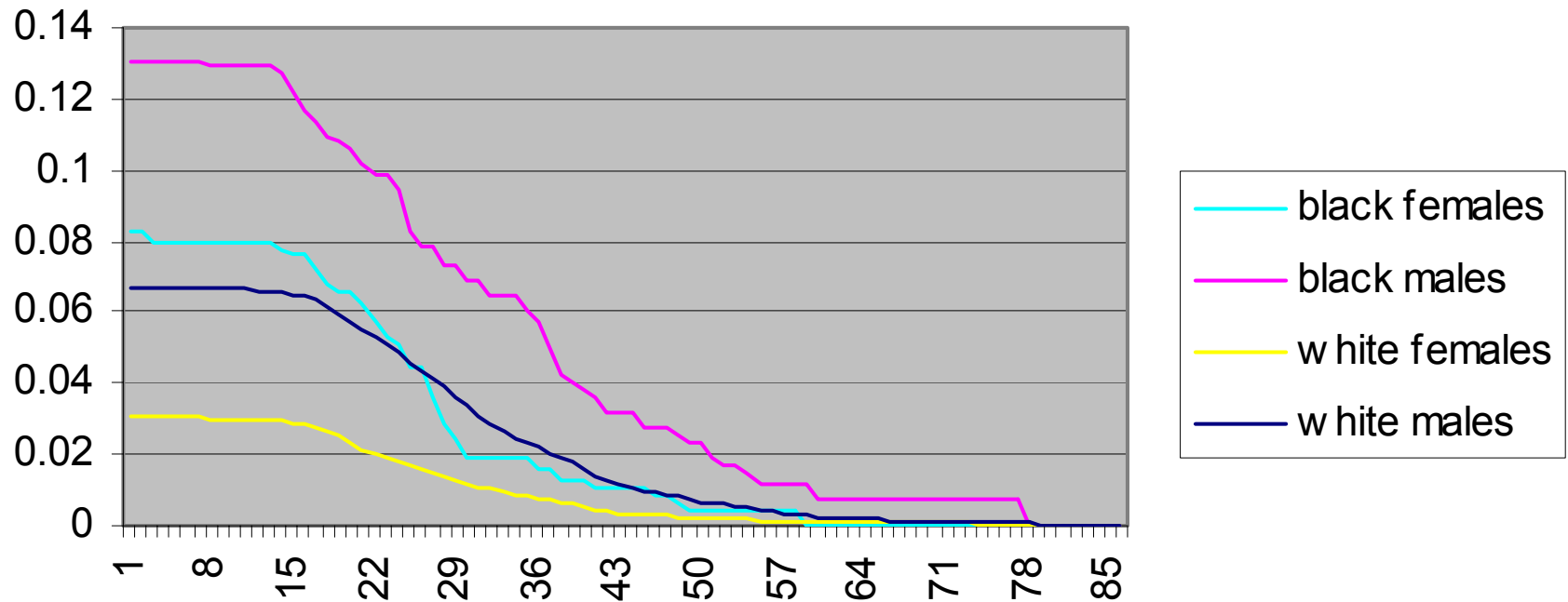
Legend:
- black females
- black males
- white females
- white males

Figure 5. The Average Person's Probability of Violent Crime Victimization Over the Life Course by Age, Race, and Sex -- When Offender is a Stranger

The Average Person's Risk of Violent Crime Victimization by a Stranger in West Virginia from Age X to Rest of Life

Figure 7. The Lifetime Risk of a Violent Crime Victimization for the Average Black Male in West Virginia by Offender Type
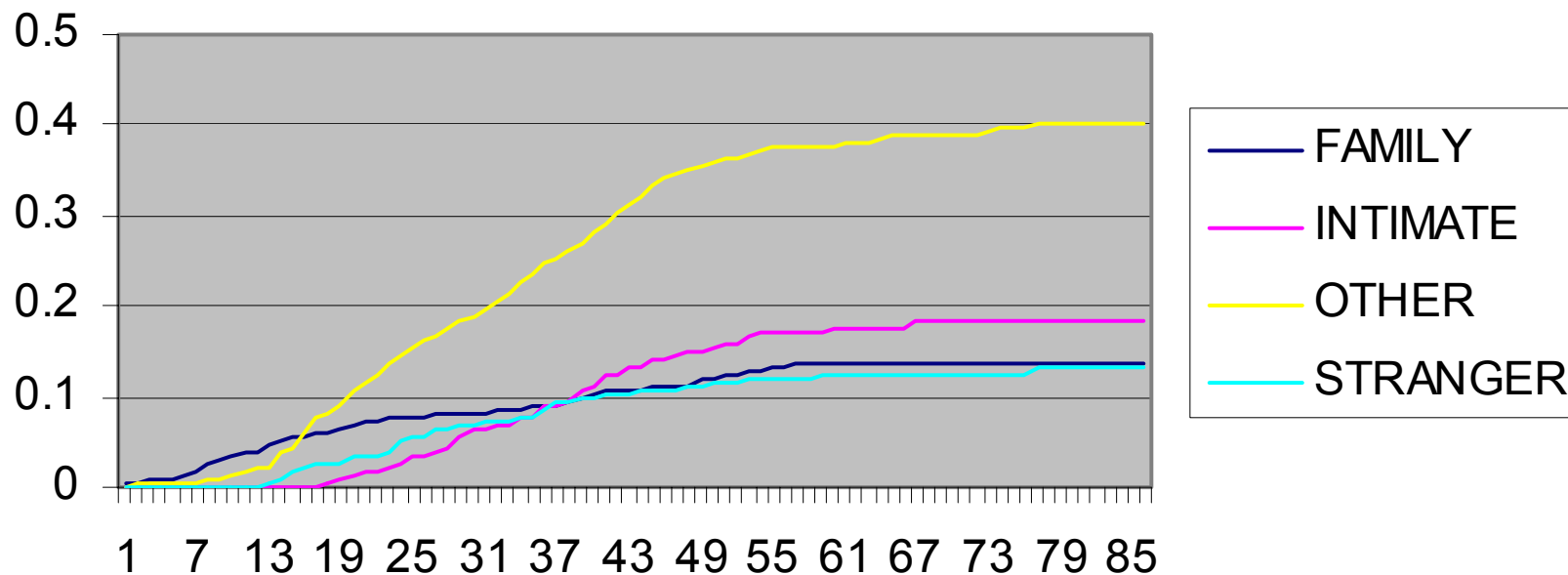
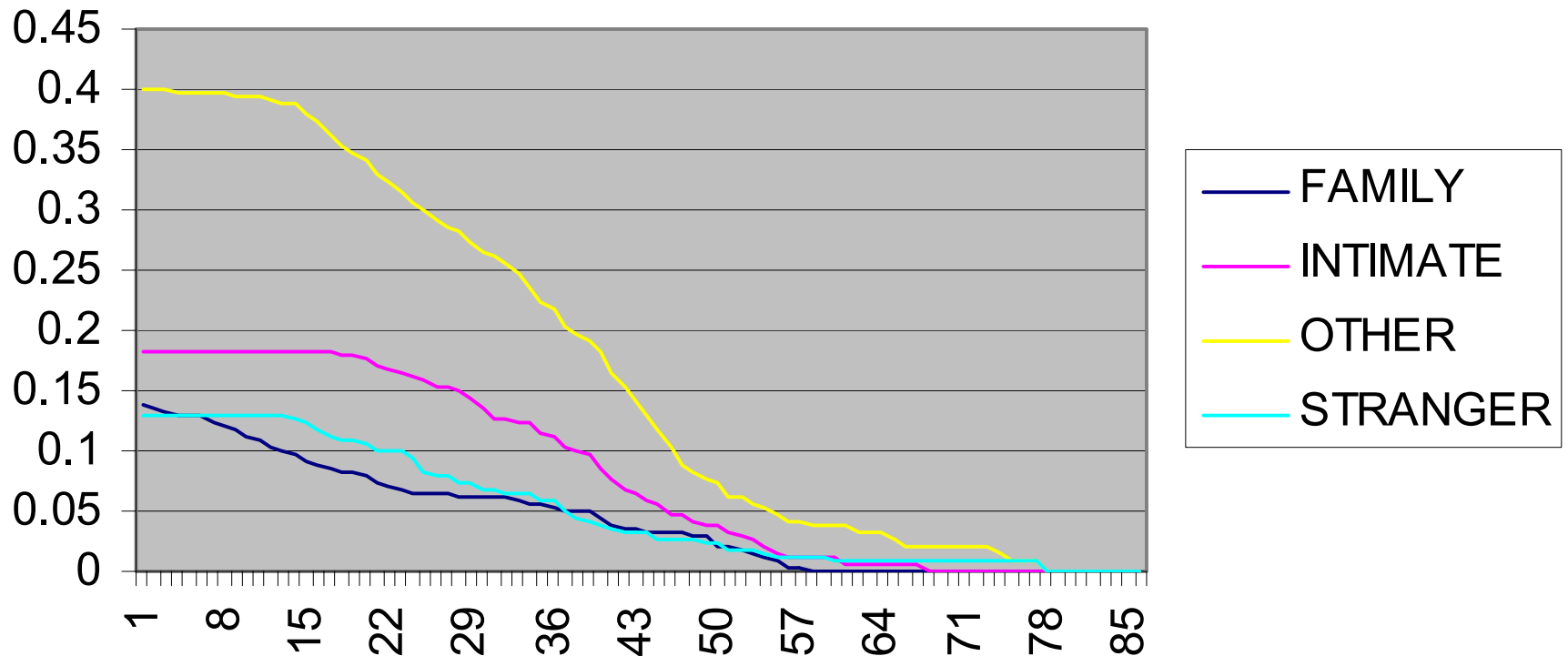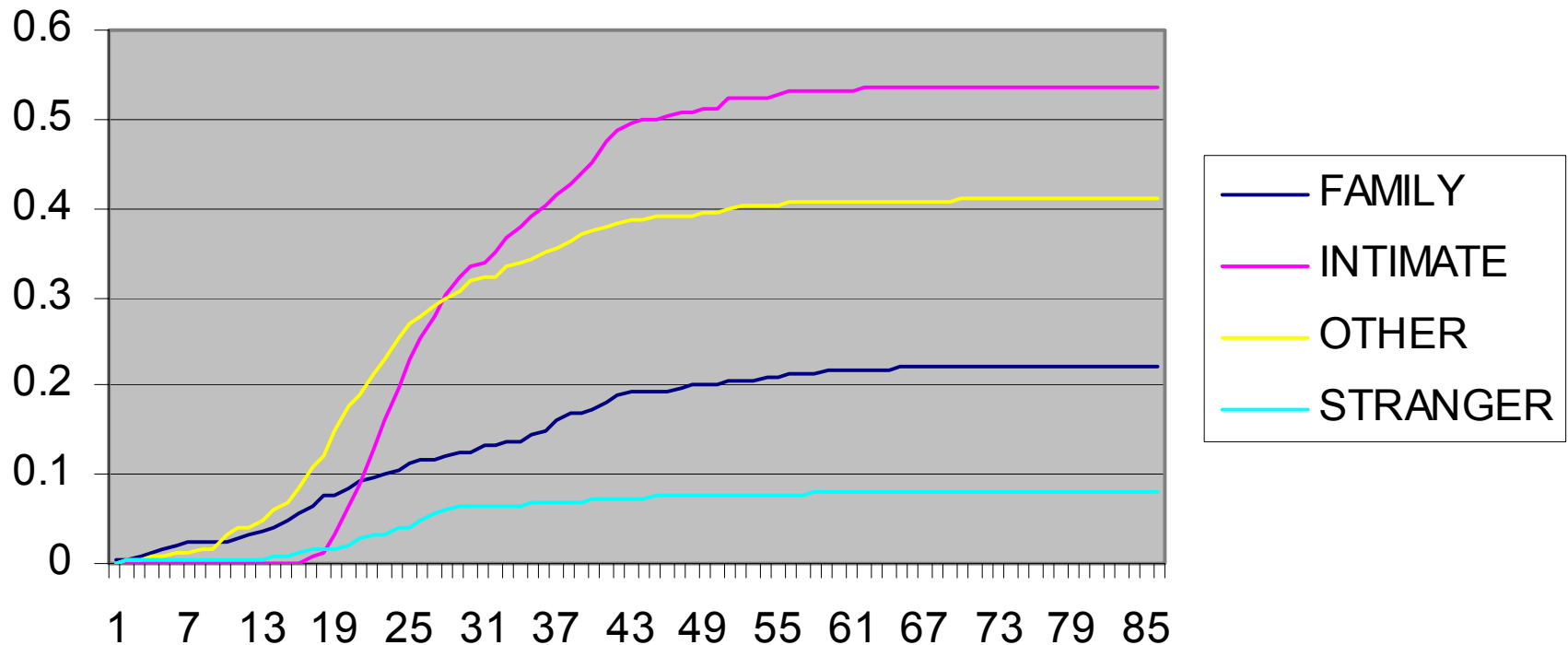The Average Black Male's Lifetime Risk of Violent Crime Victimization in West Virginia from Age X to Rest of Life

Figure 8. The Lifetime Risk of Violent Crime Victimization for the Average Black Female by Offender Type

The The Risk of Violent Crime Victimization for the Average Black Female in WV From Age X to Rest of Life
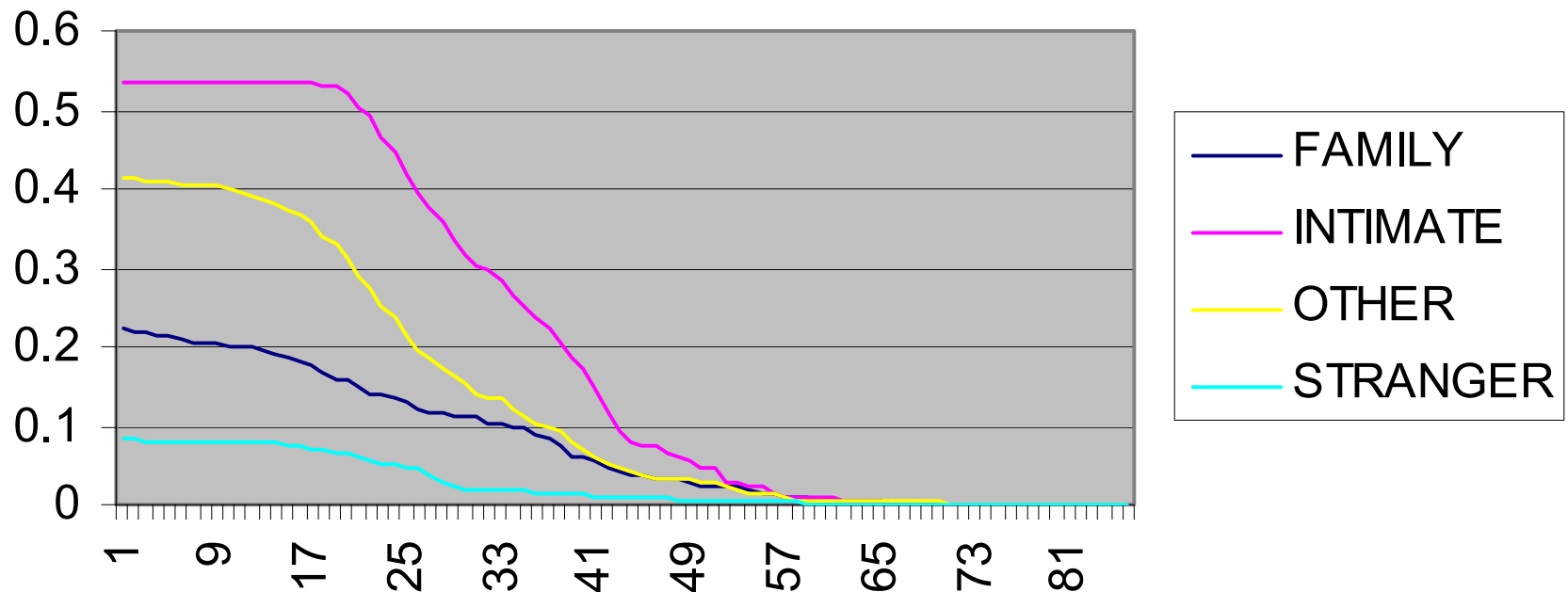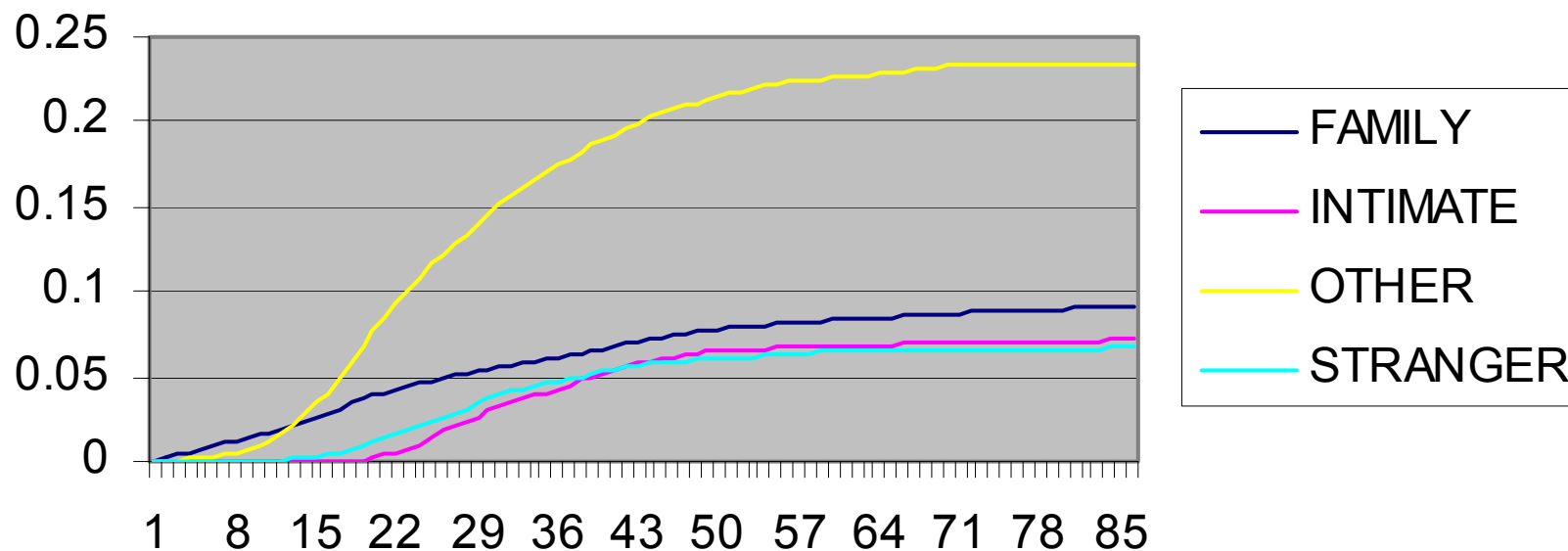
Figure 9. The Lifetime Risk of Violent Crime Victimization for the Average White Male in West Virginia by Offender Type

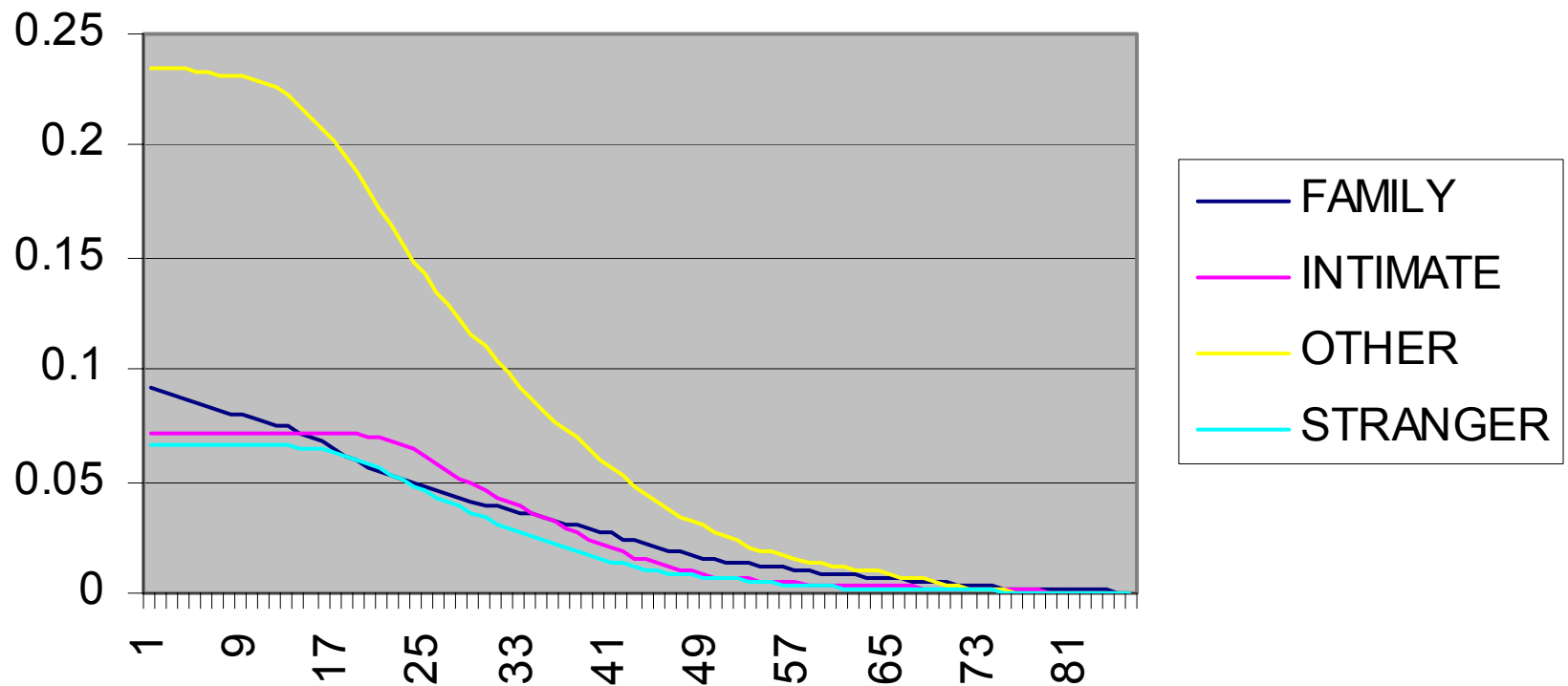The Average White Male's Risk of Violent Crime Victimization in West Virginia from Age X to Rest of Life
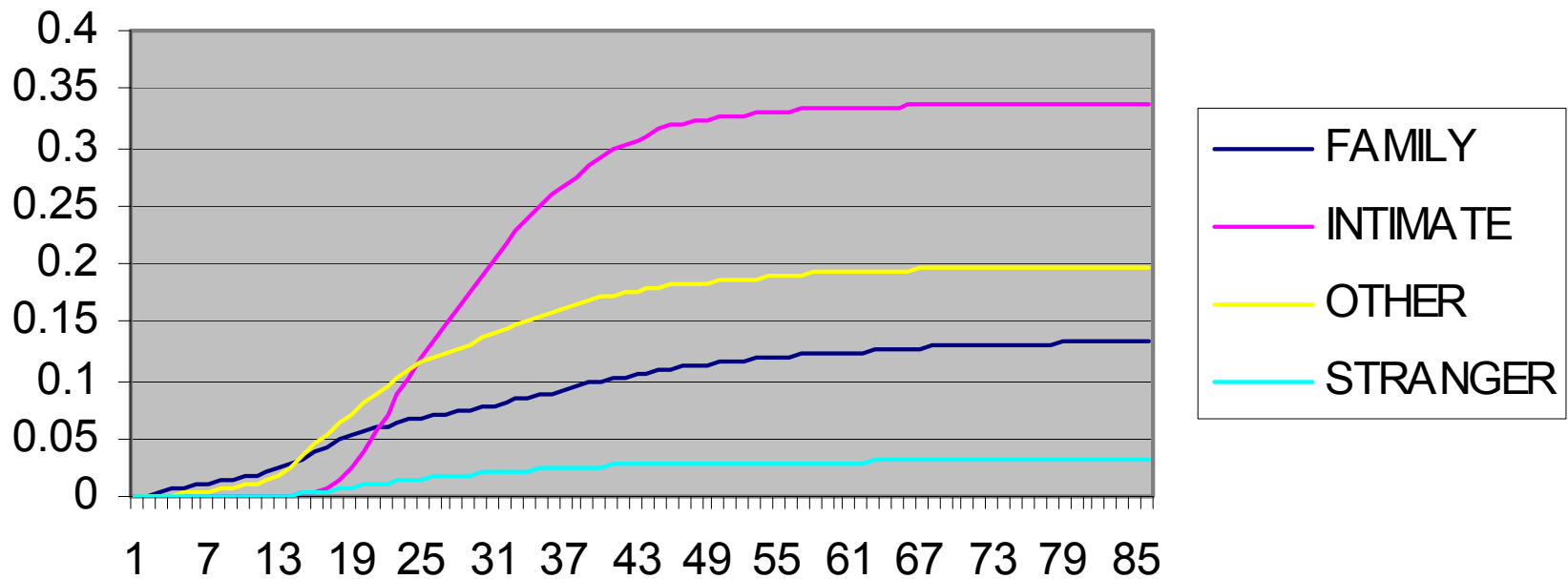
Figure 10. Lifetime Probability of Violent Crime Victimization in West Virginia for the Average White Females by Offender Type

Summary & Conclusions

- This study identifies WHEN in the life course a person in West Virginia is *most likely* to be the victim of a violent crime—by race and sex.

- The study also identifies WHO is most likely to be the perpetrator of a violent crime at *various periods* in a persons life–by race and sex.

- The study's findings may be useful to law enforcement and other government officials, researchers, public policy analysts, and service providers who allocate resources and develop programs aimed at reducing or preventing crime.

- Demonstrates one of many benefits of incident-based reporting.